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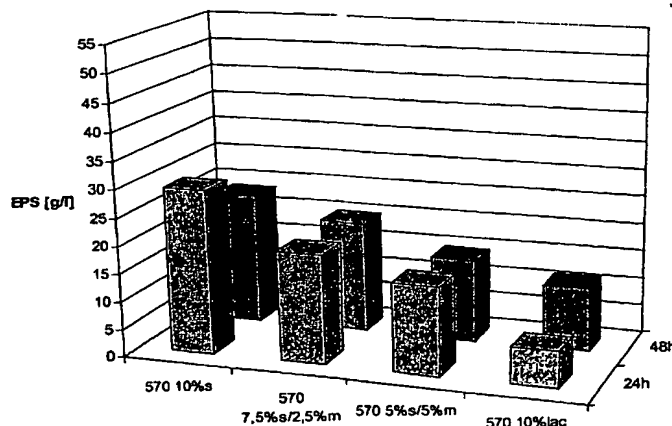
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European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,

[Continued on next page]

(54) Title: USE OF LACTOBACILLUS TO PRODUCE EXOPOLYSACCHARIDES IN FOOD AND PHARMACEUTICAL COMPOSITIONS

EPS production by *Lactobacillus sakei* 570 strain in  
sucrose/maltose and lactose supplemented growth medium.

EPS trend of Lb 570 in sucrose/maltose and lactose media



(57) Abstract: The present invention relates to a composition and a method of preparing or treating food products so as to improve their aroma, flavour, mildness, sweetness, consistency, texture, body, mouth feel, firmness, viscosity, gel fracture, wheying off, structure and/or organoleptic properties, nutrition and/or health benefits. In particular, the present invention provides a composition comprising a live micro-organism, an enzyme produced by said micro-organism and an exopolysaccharide (EPS) produced by the activity of said enzyme.

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ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,  
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,  
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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# INTERNATIONAL SEARCH REPORT

ational Application No  
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## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12P19/04 A23C9/123 A23C9/20 A23L1/30 C12N9/10  
//C12R1/225

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12P A23L A23C C12N A23D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 94/12656 A (QUEST INT ;DEN BERG DIRK JOHANNES CORNELI (NL); LEDEBOER ADRIANUS) 9 June 1994 (1994-06-09) cited in the application abstract; example 7 page 9, line 15 - line 17	1-5,7-9, 15-43
X	WO 01/57234 A (AHLGREN JEFFREY A ;SANDINE WILLIAM E (US); KNOSHAUG ERIC P (US); O) 9 August 2001 (2001-08-09) cited in the application	1-4, 15-35, 38-43
Y	the whole document	5-9,36, 37
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
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- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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- \*G\* document member of the same patent family

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23 March 2004

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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB 03/03436

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	VAN GEEL-SCHUTTEN G H ET AL: "Screening and characterization of Lactobacillus strains producing large amounts of exopolysaccharides" APPLIED MICROBIOLOGY AND BIOTECHNOLOGY 1998 GERMANY, vol. 50, no. 6, 1998, pages 697-703, XP002260931 ISSN: 0175-7598 the whole document	5-9, 36, 37
X	VAN GEEL-SCHUTTEN, G H ET AL.: "Biochemical and structural characterization of the glucan and fructan exopolysaccharides synthesized by Lactobacillus reuteri wild-type and mutant strains" APPLIED AND ENVIRONMENTAL MICROBIOLOGY, WASHINGTON, DC, US, vol. 65, 1999, pages 53-72, XP002191551 ISSN: 0099-2240 the whole document	1-4, 15-35, 38-43
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International Application No  
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 03/008618 A (TNO ;VAN GEEL-SCHUTTEN GERRITDINA H (NL)) 30 January 2003 (2003-01-30) examples 1,2,6	1-19, 33-39, 41-43
A	----- DATABASE WPI Section Ch, Week 200065 Derwent Publications Ltd., London, GB; Class A11, AN 2000-670970 XP002274658 & KR 2000 003 189 A (KIM D M) 15 January 2000 (2000-01-15) abstract	
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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/GB 03/03436

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

International Application No. PCT/GB 03 03436

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 4-9 completely, and 1-3 and 15-43 partially

Use of Lactobacilli to produce exopolysaccharides in food and cosmetic compositions, and products obtained thereby.

1.1. claims: 1-9 and 15-43, all partially

Use as above, whereby Lactobacillus sakei spp. capable of producing a glucan sucrase is used.

1.2. claims: 1-9 and 15-43, all partially

Use as above, whereby Lactobacillus plantarum spp. capable of producing a glucan sucrase is used.

1.3. claims: 1-9 and 15-43, all partially

Use as above, whereby Lactobacillus salivarium spp. capable of producing a glucan sucrase is used.

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2. claims: 10-14 completely, and 1-3 and 15-43 partially

Use of Leuconostoc to produce exopolysaccharides in food and cosmetic compositions, and products obtained thereby.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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